

The claims in the application are claims 12, 13, 15, 16, 18 to 23 and 25 to 27, all other claims having been cancelled.

Claims 12 to 26 were rejected under 35 USC 112, first paragraph, as containing new matter. The Examiner deemed the limitation of "a temperature at least about 5°C above its operating temperature" and the limitation in claim 24 were not supported by the original disclosure.

Applicants respectfully traverse these grounds of rejection since the amended claims are clearly supported by the specification. Claim 24 has been cancelled and claim 12 has been amended to delete the subject matter objected to by the Examiner. The membrane is now heated to a temperature above its glass transition temperature which is clearly supported by the specification. Therefore, withdrawal of these grounds of rejection is requested.

Claims 12 to 16, 20, 22 and 23 were rejected as being anticipated by the Shimoda patent and claims 18, 19, 21, 25 and 26 were rejected as being obvious thereover taken in view of the Murphy et al patent. With respect to Applicants' arguments, the Examiner indicated that the claim did not indicate that the membrane was a solid non-porous membrane and therefore, Applicants were arguing limitations not set forth in the claims.

Applicants respectfully traverse these grounds of rejection since the Shimoda patent taken alone or in view of the Murphy et al patent would in no way teach

Applicants have also added new claim 27 directed to a perfluorosulfonic acid fuel cell membrane which is heated to obtain a diffusion coefficient of methanol through the membrane of not greater than $1.33 \times 10^{-8} \text{ cm}^2 \text{ s}^{-1}$. This is clearly supported by page 6 of the application as filed.

In view of the amendments to the claims and the above remarks, it is believed that the claims clearly point out Applicants' patentable contribution and favorable reconsideration of the application is requested.

Respectfully submitted,
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CAM:ds
Enclosures

MARKED UP VERSION OF CLAIMS SHOWING CHANGES MADE

Claim 12 (thrice amended) A method for conditioning a polymeric proton fuel cell exchange membrane for operation at temperatures above 100°C, the method comprising the steps of:

- a: heating the membrane to a elevated temperature above its transition temperature at least about 5°C above its said intended operating temperature;
- b: selecting a desired percentage of conversion of the membrane polymer from an initial amorphous state ~~phase~~ to a crystalline state ~~phase~~;
- c: holding said membrane at the an elevated temperature for a predetermined interval, wherein the predetermined interval has been selected to permit the desired percentage conversion of amorphous to crystalline state ~~material~~; and
- d: returning the membrane to ambient temperature.

Claim 16 (twice amended) The method of claim 12 wherein the percentage conversion of crystalline state ~~material~~ is determined using X-ray spectroscopy.

Claim 25 (amended) A method of operating a polymer electrolyte membrane fuel cell at elevated temperatures equipped with a membrane conditioned by claim 12 comprising supplying an oxygen containing gas at the cathode ~~cathod~~ and supplying at the anode a fuel selected from the group consisting of hydrogen, reformat, methanol and ethanol.